

## The fallacy of directional anxiety

REMCO POLMAN\* and ERIKA BORKOLES\*

<sup>(\*)</sup> *Victoria University, ISAEL and School of Sport and Exercise Science, Melbourne, Australia*

Since the work by Jones and colleagues in the early 1990s the idea that feelings of anxiety could be interpreted as either facilitative or debilitating to athletic performance has been widely discussed in the sport psychology literature (e.g., Jones, 1995). Although this view has been promoted by a number of researchers (e.g., Hanton, Rich, & Mellalieu, 2008), we argue that this framework is based on flawed empirical research, and not supported by evidence from mainstream psychology literature (e.g., Fox, 2008; Lewis, Haviland-Jones & Feldman Barrett, 2008). As stated by Burton (1998), anxiety by definition is a negatively toned and unpleasant emotion that cannot be facilitative. Both the DSM IV and applied psychologists who have worked with individuals with anxiety or anxiety related disorders will attest to the debilitating influence of anxiety on human functioning. Their observations suggest that the notion of 'facilitative anxiety' is a contradiction in terms. An important reason for this misconception might be the notion that 'anxiety', as assessed by some instruments in the sport psychology literature, is not equivalent to 'anxiety' assessed by instruments in other psychology domains. Indeed, there is now strong evidence to suggest that in particular the CSAI-2, which has guided most of the initial research on facilitative/debilitative anxiety, has not been an adequate instrument to assess anxiety in sport (Craft, Magyar, Becker, & Feltz, 2003; Lane, Sewell, Terry, Bartram, & Nesti, 1999). The psychometric properties and factor structure of the CSAI-2 have been shown to be unreliable (e.g., Cox, Martens, & Russell, 2003; Lane et al., 1999; Lundqvist & Hassmen, 2005) and its validity has been equivocal. For example, the construct validity has been questioned. In particular the ambiguity of the word 'concern' (rather than 'worried') has been problematic because this could be interpreted either negatively (threat related, debilitating) or positively (challenge, facilitative) by indi-

---

*For correspondence: Prof. Remco Polman, Professor of Active Living, Institute of Sport, Exercise & Active Living (ISEAL), Victoria University, PO Box 14428, Melbourne VIC 8001, Australia (e-mail: remco.polman@vu.edu.au)*

viduals (Burton & Naylor, 1997; Lane et al., 1999). In addition, the predictive validity of the CSAI-2 is relatively low and appears to be influenced by a number of moderators (Craft et al., 2003; Woodman & Hardy, 2003).

It was actually this lack of clear relationship between the CSAI-2 and performance which resulted in the development of the directional anxiety framework. As Lane (2009) correctly identifies, rather than questioning the validity of the CSAI-2 researchers added a facilitative/debilitative scale to explain their findings. More recently, the interdependence of intensity and direction scored on individual items on the CSAI-2 (or CSAI-2R) has been questioned. In their study Lundqvist, Kentta and Raglin (in press) showed that only facilitative responses were provided on items which were not experienced at all or scored low in intensity by athletes. The authors suggested that summing the items on the bipolar facilitative/debilitative scale results in misleading conclusions by exaggerating the significance and actual frequency of facilitative ratings of symptoms related to anxiety. The outlined limitations of the CSAI-2 and statistical techniques used suggest that results supporting the directional framework are at best spurious and most likely the results of measurement artefacts because of the instrument used and statistical techniques adopted. More worryingly, little psychometric or validity information is available for this additional facilitative/debilitative scale. Lundquest et al. (in press) demonstrated that the facilitative scale had little relationship to actual performance. This observation provides significant concern about the validity of the directional hypothesis. To further illustrate these arguments, no researcher would suggest adding a similar debilitative/facilitative scale to Spielberger's state/trait anxiety inventory or any other anxiety/emotion inventory for that matter.

Current evidence from neuroscience also does not support the idea that emotions are interpreted as facilitative or debilitative. For example, there is strong biological evidence that positive and negative emotional feelings emerge from ancient subcortical regions which are similar in all mammalian brains. These are the areas which light up when emotions like anger, sadness and fear are experienced. At the same time neocortical systems show reduced arousal levels (e.g., Panksepp, 2008).

The study by Pellizzari et al. (2010) attempted to extend the directional hypothesis to other emotions regularly experienced by athletes. In addition, the authors suggested that there is support for this interpretation. However, we argue that the emotions identified for the different performance states (optimal pleasant and dysfunctional unpleasant for good, average and poor performance), are characterised by dissimilar emotions for the different states rather than a different interpretation of the same emotion. Such an interpretation is in line with earlier findings by Folkman and Lazarus (1985) and Folkman (1997)

who observed that both positive and negative emotions can occur within the same stressful encounter. The co-occurrence of positive and negative emotions has mainly been observed in individuals with serious injury (e.g., spinal cord injury), disease (e.g., AIDS), or experiencing loss (e.g., sudden infant death syndrome). More recently Nicholls, Hemmings, and Clough (in press) made a similar observation in a sample of elite golfers. Therefore, we argue that this framework provides a more eloquent explanation of the findings by Pellizzari et al. as well as a more fruitful avenue for investigating the emotion – performance relationship. The co-occurrence of negative and positive emotions has both theoretical and practical implications. For example, Folkman (1997) provided a new model of the coping process. Also, to date it is unclear whether negative and positive emotions are bipolar or relatively independent in nature. This is an important issue because it has significant influence on coping behaviour (Folkman & Moskowitz, 2004). Researchers, therefore, could examine the relative strength of the different negative and positive emotions on appraisal, coping and event outcome. For example, the interaction of the different emotions would most likely influence the amount of stress experienced and primary appraisal of a stressful event with experiencing predominantly negative emotions resulting in appraising the situation as a threat, whereas predominately positive emotions would result in appraising the stressful event as a challenge. It is also likely that the interacting emotions influence secondary appraisal (perceptions of control over the situation), as well as the actual coping strategies used (directly or indirectly via the appraisal process), and their effectiveness with the stressful encounter and ultimately performance. Folkman and Moskowitz (2004) have identified the interest in positive emotions during both acute and chronic stress as one of the most exciting research developments. We concur with this assumption.

What is clear is that researchers will have to assess a number of negative and positive emotions (and possibly their strength) to provide a more comprehensive and meaningful interpretation of the emotion – performance relationship. In addition, there is a need for the development of valid and reliable instruments to assist researchers in this endeavour. Taking into consideration current theory and findings in main stream psychology, we argue that research on the directional hypothesis in sport and exercise psychology is just an empirical and theoretical cul-de-sac and other theoretical frameworks need to be considered to explain the emotion – performance relationship.

## REFERENCES

- Burton, D. (1998). Measuring competitive state anxiety. In J. Duda (Ed.), *Advances in sport and exercise psychology* (pp. 129-148). Morgantown, WV: Fitness Informational Technology.

- Burton, D., & Naylor, S. (1997). Is anxiety really facilitative? Reaction to the myth that cognitive anxiety always impairs sport performance. *Journal of Applied Sport Psychology*, 9, 295-302.
- Cox, R.H., Martens, M.P., & Russell, W.D. (2003). Measuring anxiety in athletes: The Revised Competitive State Anxiety Inventory-2. *Journal of Sport and Exercise Psychology*, 25, 519-533.
- Craft, L.L., Magyar, T.M., Becker, B.J., & Feltz, D.L. (2003). The relationship between the Competitive State Anxiety Inventory-2 and sport performance: A meta-analysis. *Journal of Sport and Exercise Psychology*, 25, 44-65.
- Folkman, S. (1997). Positive psychological states and coping with severe stress. *Social Science Medicine*, 45, 1207-1221.
- Folkman, S., & Lazarus, R.S. (1985). If it changes it must be a process: Study of emotion and coping during three stages of a college examination. *Journal of Personality and Social Psychology*, 48, 150-170.
- Folkman, S., & Moskowitz, J.T. (2004). Coping: Pitfalls and promise. *Annual Review of Psychology*, 55, 754-774.
- Fox, E. (2008). *Emotion science: Cognitive and neuroscientific approaches to understanding human emotions*. Basingstoke: Palgrave MacMillan.
- Hanton, S., Neil, R., & Mellalieu, S.D. (2008). Recent developments in competitive anxiety direction and competition stress research. *International Review of Sport and Exercise Psychology*, 1, 45-57.
- Jones, G. (1995). More than just a game: Research developments and issues in competitive anxiety in sport. *British Journal of Psychology*, 86, 449-478.
- Lane, A. (2009). Debate: Studying anxiety interpretations is useful for sport and exercise psychologists. *Sport & Exercise Psychology Review*, 5, 48-55.
- Lane, A.M., Sewell, D., Terry, P.C., Bartram, D., & Nesti, M.S. (1999). Confirmatory factor analysis of the Competitive State Anxiety Inventory-2. *Journal of Sports Sciences*, 17, 505-512.
- Lewis, M., Haviland-Jones, J.M., & Feldman Barrett, L. (2008). *Handbook of emotions* (3<sup>rd</sup> Ed). London: Guilford Press.
- Lundqvist, C., & Hassmen, P. (2005). Competitive State Anxiety Inventory-2 (CSAI-2): Evaluating the Swedish version by confirmatory factor analysis. *Journal of Sports Sciences*, 23, 727-736.
- Lundqvist, C., Kentta, G., & Raglin, J.S. (in press). Directional anxiety responses in elite and sub-elite young athletes: Intensity of anxiety symptoms matter. *Scandinavian Journal of Medicine and Science in Sport*.
- Nicholls, A. R., Hemmings, B., & Clough, P. J. (in press). Stressors, coping, and emotion among international adolescent golfers. *Scandinavian Journal of Medicine and Science in Sports*.
- Panksepp, J. (2008). The affective brain and core consciousness: How does neural activity generate emotional feelings? In M. Lewis, J.M. Haviland-Jones & L. Feldman Barrett (Eds.), *Handbook of emotions* (pp. 47-67). London: Guilford Press.
- Woodman, T., & Hardy, L. (2003). The relative impact of cognitive anxiety and self-confidence upon sport performance: A meta-analysis. *Journal of Sports Sciences*, 21, 443-457.